We claim:

1. A projector comprising:
a broad-spectrum light source having a broad spectrum; and,
a narrow-spectrum light source having a narrow spectrum complementing the broad spectrum of the broad-spectrum light source.

2. The projector of claim 1, wherein the broad spectrum of the broad-spectrum light source has a partial spectral power deficiency, and the narrow spectrum of the narrow-spectrum light source corresponds to the partial spectral power deficiency.

3. The projector of claim 2, wherein the broad-spectrum light source outputs light greater than a threshold brightness level throughout the broad spectrum except at a part of the broad spectrum at which the partial spectral power deficiency exists.

4. The projector of claim 3, wherein the narrow-spectrum light source outputs light at the part of the broad spectrum at which the partial spectral power deficiency of the broad-spectrum light source exists greater than the threshold brightness level.

5. The projector of claim 2, such that light output by the broad-spectrum light source in combination with light output by the narrow-spectrum light source is greater than a threshold brightness level throughout the broad spectrum.

6. The projector of claim 2, wherein the partial spectral deficiency comprises a red spectral power deficiency.

7. The projector of claim 1, wherein the narrow spectrum of the narrow-spectrum light source has a high color intensity corresponding to a low color intensity of the broad spectrum of the broad-spectrum light source.

8. The projector of claim 7, wherein the broad-spectrum light source outputs light having a color intensity greater than a threshold color intensity level throughout the broad spectrum except at a part of the broad spectrum having the low color intensity.

9. The projector of claim 8, wherein the narrow-spectrum light source outputs light having the high color intensity greater than the threshold color intensity level at the part of the broad spectrum at which the light output by the broad-spectrum light source has the low color intensity.

10. The projector of claim 7, such that light output by the broad-spectrum light source in combination with light output by the narrow-spectrum light source has a color intensity greater than a threshold color intensity level throughout the broad spectrum.

11. The projector of claim 7, wherein the low color intensity comprises one of a low blue intensity and a low green intensity.

12. The projector of claim 1, wherein the broad-spectrum light source comprises an ultra-high-pressure (UHP) mercury-vapor arc lamp.

13. The projector of claim 1, wherein the narrow-spectrum light source comprises at least one light-emitting diode (LED).

14. The projector of claim 1, further comprising:

a spatial light modulator (SLM) to modulate light output by both the broad-spectrum light source and the narrow-spectrum light source in accordance with

an image; and,

optics to project the light as modulated by the SLM in accordance with the image outward from the projector.

15. A projector comprising:

a primary light means for providing light having a broad spectrum, the light being weak at a narrow part of the broad spectrum; and,

a compensatory light means for compensating for the narrow part of the broad spectrum at which the light is weak.

16. The projector of claim 15, wherein the light is weak at the narrow part of the broad spectrum in that a brightness of the light is weak at the narrow part of the broad spectrum.

17. The projector of claim 16, wherein the narrow part of the broad spectrum comprises a red spectral part of the broad spectrum.

18. The projector of claim 15, wherein the light is weak at the narrow part of the broad spectrum in that a color intensity of the light is weak at the narrow part of the broad spectrum.

19. The projector of claim 18, wherein the narrow part of the broad spectrum comprises one of a blue spectral part and a green spectral part of the broad spectrum.

20. The projector of claim 15, wherein the primary light means comprises an ultra-high-pressure (UHP) mercury-vapor arc lamp, and the compensatory light means comprises at least one light-emitting diode (LED).

21. The projector of claim 15, further comprising:

a spatial light modulator (SLM) to modulate the light provided by the primary

light means as compensated for by the compensatory light means in accordance with an image; and,

optics to project the light as modulated by the SLM in accordance with the image outward from the projector.

22. A projection system, comprising:

a reflector;

a primary light source positioned within the reflector and having a broad spectrum; and,

a secondary light source positioned adjacent to the primary light source within the reflector and having a narrow spectrum.

23. The projection system of claim 22, wherein the broad spectrum of the primary light source has a narrow spectral deficiency to which the narrow spectrum of the secondary light source corresponds.

24. The projection system of claim 23, wherein the narrow spectral deficiency is one of a light brightness deficiency at the narrow spectrum and a color intensity deficiency at the narrow spectrum.

25. The projection system of claim 22, wherein the secondary light source comprises a light ring in which the primary light source is centered.

26. The projection system of claim 25, wherein the light ring comprises a plurality of light-emitting diodes (LED's) arranged in a ring formation.

27. The projection system of claim 22, further comprising:

a condenser lens to focus light output by the primary light source and the secondary light source as reflected by the reflector; and,

a rotatable color wheel having at least red, green, and blue portions, the light focused by the lens onto the rotatable color wheel.

28. The projection system of claim 22, further comprising:

an integration rod to render a uniform cross-section of light output by the primary light source and the secondary light source as reflected by the reflector; and,

a lens to collimate the light rendered uniform by the integration rod.

29. The projection system of claim 22, further comprising:

a spatial light modulator (SLM) to modulate the light output by the primary light source and the secondary light source as reflected by the reflector in accordance with an image; and,

optics to project outward the light as modulated by the SLM in accordance with the image.

30. A projection system, comprising:

a reflector;

a primary light source positioned within the reflector and outputting light with a broad spectrum; and,

a secondary light source positioned outside the reflector and outputting light with a narrow spectrum and optically routed for combination with the light output by the primary light source.

31. The projection system of claim 30, wherein the broad spectrum of the light output by the primary light source has a narrow spectral power deficiency to which the narrow spectrum of the light output by the secondary light source corresponds.

32. The projection system of claim 31, wherein the narrow spectral deficiency is one of a light brightness deficiency at the narrow spectrum and a color intensity deficiency at the narrow spectrum.

33. The projection system of claim 30, further comprising fiber optics to optically route the light output by the secondary light source for combination with the light output by the primary light source.

34. The projection system of claim 30, further comprising:

an integration rod to combine and render uniform the light output by the primary light source and the light output by the secondary light source; and,

a lens to collimate the light output by the primary light source and the light output by the secondary light source as combined and rendered cross-sectionally uniform by the integration rod.

35. The projection system of claim 34, further comprising:

a rotatable color wheel having at least red, green, and blue portions, the light output by the primary light source routed through the rotatable color wheel before reaching the integration rod; and,

a condenser lens to focus the light output by the primary light source as reflected by the reflector onto the rotatable color wheel.

36. The projection system of claim 30, further comprising:

a spatial light modulator (SLM) to modulate the light output by the primary light source as reflected by the reflector and as combined with the light output by the secondary light source in accordance with an image; and,

optics to project outward the light as modulated by the SLM in accordance with the image.

37. A projection system comprising:

means for emitting first light having a broad spectrum; and,

means for emitting second light having a narrow spectrum complementing the broad spectrum of the first light.

38. The projection system of claim 37, wherein the broad spectrum has a partial spectral power deficiency, and the narrow spectrum corresponds to the partial spectral power deficiency.

39. The projection system of claim 37, wherein the narrow spectrum has a high color intensity corresponding to a low color intensity of the broad spectrum.

40. A method for performance in conjunction with a projector comprising:
providing light by a broad-spectrum light source having a broad spectrum;
providing light by a narrow-spectrum light source having a narrow spectrum complementing the broad spectrum of the broad-spectrum light source; and,
combining the light provided by the broad-spectrum light source with the light provided by the narrow-spectrum light source.

41. The method of claim 40, further comprising adjusting the light provided by the narrow-spectrum light source to compensate for a partial spectral power deficiency of the broad spectrum of the light provided by the broad-spectrum light source, the narrow spectrum of the light provided by the narrow-spectrum light source corresponding to the partial spectral power deficiency.

42. The method of claim 40, further comprising adjusting the light provided by the narrow-spectrum light source to compensate for a low color intensity of the broad spectrum of the light provided by the broad-spectrum light source, the narrow spectrum of the light provided by the narrow-spectrum light source having a high color intensity corresponding to the low color intensity of the broad spectrum of the light provided by the broad-spectrum light source.

43. The method of claim 40, further comprising outputting the light provided by the broad-spectrum light source as combined with the light provided by the narrow-spectrum light source through a spatial light modulator (SLM) and through projection optics.

44. The method of claim 40, further comprising outputting the light provided by the broad-spectrum light source as combined with the light provided by the narrow-spectrum light source through a rotatable color wheel and an integration rod.

45. The method of claim 40, further comprising:

outputting the light provided by the broad-spectrum light source through a rotatable color wheel prior to combination with the light provided by the narrow-spectrum light source; and,

outputting the light provided by the broad-spectrum light source after outputting through the rotatable color wheel and as combined with the light provided by the narrow-spectrum light source through an integration rod.

46. A method for performance in conjunction with a projector comprising:

providing a primary light source having a broad spectrum;

providing a secondary light source having a narrow spectrum complementing the broad spectrum of the primary light source; and,

positioning the secondary light source relative to the primary light source so that light provided by the primary light source is combined with light provided by the secondary light source.

47. The method of claim 46, wherein positioning the secondary light source relative to the primary light source comprises positioning the secondary light source adjacent to the primary light source within a reflector.

48. The method of claim 47, further comprising positioning a rotatable color wheel and an integration rod such that the light provided by the primary light source as combined with the light provided by the secondary light source passes through the rotatable color wheel and the integration rod.

49. The method of claim 46, wherein positioning the secondary light source relative to the primary light source comprises positioning the secondary light source outside a reflector in which the primary light source is positioned and optically routing the light provided by the secondary light source for combination with the light provided by the primary light source.

50. The method of claim 49, further comprising:

positioning a rotatable color wheel such that the light provided by the primary light source passes through the rotatable color wheel prior to being combined with the light provided by the secondary light source; and,

positioning an integration rod such that the light provided by the primary light source as passed through the rotatable color wheel and combined with the light provided by the secondary light source passes through the integration rod.

51. The method of claim 46, further comprising positioning a spatial light modulator (SLM) and projection optics so that the light provided by the primary light source as combined with the light provided by the secondary light source passes through the SLM and the projection optics.

52. A projection system comprising:

a light source of a first type; and,

a light source of a second type, a spectrum of the light source of the second type complementing a spectrum of the light source of the first type.

53. The projection system of claim 52, wherein the spectrum of the light source of the first type is broad, and the spectrum of the light source of the second type is narrow.

54. The projection system of claim 52, wherein the first type is an ultra-high-pressure (UHP) mercury-vapor arc lamp type.

55. The projection system of claim 52, wherein the second type is a light-emitting diode (LED) lamp type.

56. A narrow-spectrum light source for use in a projection system having a primary broad-spectrum light source, the narrow-spectrum light source having a narrow spectrum complementing a broad spectrum of the broad-spectrum light source.

57. The narrow-spectrum light source of claim 56, wherein the narrow spectrum of the narrow-spectrum light source corresponds to a partial spectral power deficiency of the broad spectrum of the broad-spectrum light source.

58. The narrow-spectrum light source of claim 56, wherein the narrow spectrum of the narrow-spectrum light source has a high color intensity corresponding to a low color intensity of the broad spectrum of the broad-spectrum light source.

59. The narrow-spectrum light source of claim 56, wherein the narrow-spectrum light source includes one or more light-emitting diodes (LED's).

60. A broad-spectrum light source for use in a projection system having a narrow-spectrum light source, the broad-spectrum light source having a broad spectrum, the narrow-spectrum light source having a narrow spectrum complementing the broad spectrum of the broad-spectrum light source.

61. The broad-spectrum light source of claim 60, wherein the broad spectrum of the broad-spectrum light source has a partial spectral power deficiency to which the narrow spectrum of the narrow-spectrum light source corresponds.

62. The broad-spectrum light source of claim 60, wherein the broad spectrum of the broad-spectrum light source has a low color intensity to which a high color

intensity of the narrow spectrum of the narrow-spectrum light source corresponds.

63. The broad-spectrum light source of claim 60, wherein the broad-spectrum light sources includes an ultra-high-pressure (UHP) mercury-vapor arc lamp.